



**Science
Societies**

Building connections that build careers

By The Web of Nigerian Agricultural Scientists in Diaspora, a specialty group of
ASA, CSSA, and SSSA

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AI-generated image courtesy of Microsoft Copilot.

Scientific success depends on more than technical expertise. Three agricultural scientists share practical lessons on mentorship, communication, collaboration, and adaptability, and explain how strong professional relationships can shape careers from graduate school through industry leadership.

Scientific discovery rarely happens in isolation. Behind the work of graduate students, researchers, academics, and industry professionals is a network of professional relationships—advisers who provide guidance, supervisors who establish expectations, colleagues who contribute expertise, and collaborators who help transform ideas into outcomes. According to the National Academies of Sciences, Engineering, and Medicine, the quality of mentorship and team science can influence scientific development, collaboration, productivity, and career progression.

Yet, despite their importance, the skills required to build and sustain productive professional relationships are not always systematically incorporated into scientific training. Technical competence is essential, but scientists must also learn how to communicate expectations, receive and provide feedback, resolve disagreements, collaborate across disciplines and cultures, and navigate evolving professional relationships.

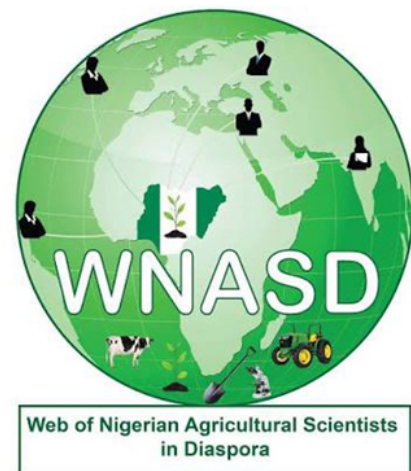
Whether in agriculture or almost any other professional field, success requires the ability to work effectively with others. These relationships may include supervisors, advisers, team members, clients, regulatory agencies, professional associations, and members of the public. For some individuals, navigating professional relationships comes naturally. For many others, it is a competency developed gradually through education, experience, reflection, and adaptation.

Recognizing the importance of these often-overlooked professional skills, the Web of Nigerian Agricultural Students in Diaspora (WNASD) hosted a webinar focused on building productive relationships with advisers, supervisors, and team members.

The event featured three professionals

whose experiences span graduate education

through careers in academia and industry. Drawing on their experiences, the speakers offered practical perspectives on developing professional relationships that support scientific productivity, personal development, and long-term career success.



Understanding the supervisor–student or postdoctoral fellow partnership

Dr. Kingsley John, a Postdoctoral Fellow in the Faculty of Agriculture at Dalhousie University, Canada, opened the discussion by focusing on relationships between supervisors and graduate students or postdoctoral fellows. He emphasized that productive relationships begin with a clear understanding of roles, responsibilities, expectations, and professional boundaries.



*Kingsley John. Photo courtesy of Dalhousie University **Centre for Sustainable Soil Management**.*

His first message centered on recognizing the supervisor primarily as an academic mentor rather than approaching the relationship as one would a friendship or family relationship. While positive interpersonal relationships can strengthen mentorship, maintaining appropriate professional boundaries and understanding the respective responsibilities of the supervisor and trainee are equally important.

Research on mentorship supports the importance of establishing clear roles and expectations. Successful mentoring relationships tend to be characterized by reciprocity, mutual respect, clear expectations, personal connection, and shared values. In contrast, unsuccessful relationships may involve poor communication, lack of commitment, personality differences, and mismatched expectations.

John also challenged the assumption that supervisors must always have all the answers. Faculty members often balance multiple responsibilities, including mentoring students, teaching, conducting research, preparing grant proposals, developing collaborations, attending conferences, and fulfilling administrative obligations. At the same time, graduate students and postdoctoral researchers can become highly specialized in their individual research topics and may eventually develop expertise that extends beyond that of their supervisors in specific areas.

This reality makes intellectual ownership and preparation particularly important.

Students and postdoctoral researchers should approach meetings having reviewed

relevant literature, considered possible solutions to research challenges, and identified specific questions for discussion. Rather than relying entirely on supervisors to determine the next step, trainees can benefit from developing increasing independence as their research progresses. Effective mentorship should ultimately help mentees develop greater confidence, independence, professional identity, and capacity to make informed decisions about their work and careers.

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Proactive communication is equally important. Regular progress updates—whether through meetings, brief written summaries, or weekly or biweekly emails—can help maintain alignment, document progress, identify emerging challenges, and provide opportunities for timely feedback.

John further emphasized the importance of learning to receive constructive criticism. Scientific training involves continuous evaluation of ideas, experiments, analyses, presentations, and manuscripts. Developing the ability to distinguish constructive critique of one's work from personal criticism is therefore an important professional skill. At the same time, effective mentoring should foster respectful, specific, and

development-oriented feedback. Research on effective mentorship similarly emphasizes the importance of communication, trust, responsiveness, and constructive feedback in creating productive developmental relationships.

Ultimately, graduate and postdoctoral training should contribute not only to research productivity, but also to the development of scientific independence, transferable skills, professional judgment, and readiness for future career opportunities.

Setting adviser–student expectations for success

While John approached the topic primarily from the trainee's perspective, Dr. Eric Westra, Assistant Professor of Weed Science in the Department of Plants, Soils, and Climate at Utah State University, USA, provided an adviser's perspective on effective mentorship.



Eric Westra. Photo courtesy of [The S.J. & Jessie E. Quinney College of Agriculture & Natural Resources](#) of Utah State University.

Westra described mentoring and training the next generation of scientists as an important responsibility of academic advisers. Effective mentorship extends beyond technical research training and can encompass research productivity, authorship, time management, communication, professional conduct, networking, career development, and conflict resolution. Advisers, therefore, influence not only what students learn scientifically but also many of the professional behaviors students may carry

into their subsequent careers.

This broader conception of mentorship is consistent with contemporary approaches to scientific training. Mentoring can encompass research guidance, career development, professional socialization, psychosocial support, networking, and the development of scientific identity and independence. Importantly, effective mentoring should not be assumed to occur automatically simply because someone is an accomplished scientist. Mentoring itself involves competencies that can be learned, practiced, and improved.

Two recurring sources of difficulty in adviser–student relationships, Westra noted, are [misaligned expectations and ineffective communication](#). Expectations should be discussed early and revisited periodically. Students and advisers may hold different assumptions regarding working hours, meeting frequency, research independence, authorship, publication expectations, conference participation, response times, vacation, career development, and even what constitutes satisfactory progress. Expectations can also change as students advance through their programs. Studies of mentoring relationships have identified mismatched expectations and poor communication among the factors associated with unsuccessful mentoring experiences.

One practical approach is the use of a “mentor–mentee compact,” a shared document or agreement that identifies expectations, responsibilities, communication practices, and professional–development goals. Rather than treating such a compact as a one–time administrative exercise, advisers and students can revisit and modify it as circumstances and professional needs evolve. Such explicit conversations can make assumptions visible before they develop into misunderstandings.

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Communication represents the second major component of the relationship. Cultural background, previous educational experiences, personality, and communication styles can influence how messages are expressed and interpreted, sometimes without either party recognizing the differences involved. This is particularly relevant in contemporary science, where research teams and academic programs increasingly bring together individuals from different disciplinary, cultural, institutional, and national backgrounds.

Where feasible, complex or potentially sensitive matters may benefit from direct conversations rather than relying exclusively on written communication. Students can also take initiative by maintaining regular communication instead of assuming that the adviser will always initiate contact.

The broader lesson is that effective mentorship is a shared process. Both advisors and trainees contribute to creating an environment characterized by clarity, communication, accountability, respect, and professional development.

Collaboration beyond academia

Extending the discussion beyond academic environments, Dr. Ugochukwu Ikeogu, Senior Scientist at Bayer U.S. Crop Science, considered how many of the same

principles apply in industry, where collaboration, adaptability, and interpersonal effectiveness are integral to accomplishing organizational goals.



Ugochukwu Ikeogu

A central theme of his discussion was the importance of “evolving with one's professional environment.” Moving between countries, institutions, disciplines, laboratories, or organizations may require individuals to reconsider assumptions about how professional relationships function. Practices that were effective in one environment may not translate directly into another.

This is particularly relevant for scientists transitioning from academic environments into industry or entering workplaces with different cultural and organizational norms. Adaptation does not necessarily mean abandoning one's identity or values. Rather, it involves developing the awareness and flexibility required to understand how people communicate, make decisions, resolve disagreements, and collaborate within a particular professional environment.

Ikeogu emphasized that interpersonal relationships can play a significant role in accomplishing shared goals. Effective collaboration requires recognizing that colleagues may differ in personality, expertise, communication style, motivation, and approach to problem-solving. [Asking questions rather than making assumptions can prevent avoidable misunderstandings, while emotional and interpersonal awareness can help professionals](#)

understand how their words and actions affect others.

Research on team science reinforces this point. Successful scientific collaboration requires more than assembling individuals with complementary technical expertise. Communication, trust, coordination, clarity of roles, shared goals, and the ability to manage disagreements all influence how effectively scientific teams function.

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An additional consideration is psychological safety—the extent to which team members believe they can raise questions, acknowledge mistakes, seek clarification, or express concerns without fear of interpersonal punishment. Psychological safety has been associated with learning behavior in teams and provides an important framework for understanding why environments that encourage questions and constructive disagreement can facilitate learning and collaboration.

Accountability and commitment are equally important. Teams function more effectively when colleagues can depend on one another to honor commitments, communicate challenges early, and complete agreed-upon responsibilities. Reliability therefore becomes more than a desirable personal characteristic; it contributes directly to trust within professional relationships.

Ikeogu also emphasized balancing humility with professional ambition. Humility creates space for learning, collaboration, and recognition of the contributions of others, while ambition encourages individuals to pursue growth, accept challenging assignments, develop new competencies, and seek opportunities for greater impact. These qualities need not be contradictory. Together, they can support continuous professional development.

His broader message was that professional effectiveness requires more than technical expertise. Scientists must also learn to adapt, communicate, collaborate, and intentionally cultivate relationships appropriate to the environments in which they work.

Relationships that shape careers

Although the three speakers approached professional relationships from different positions and career environments, several common principles emerged. Strong professional relationships rarely develop by chance. They are cultivated through clear expectations, effective communication, mutual respect, accountability, adaptability, reliability, and continuous learning.

"The ability to build productive professional relationships should be viewed not simply as a secondary 'soft skill,' but as an important component of scientific and professional competence."

For students and early career professionals in agricultural science, technical expertise remains indispensable. Scientific knowledge, experimental competence, analytical skills, and research productivity form the foundation of professional credibility. However, technical competence

Scientists work within systems of people. Research projects require collaboration. Graduate training requires mentorship. Industry requires teamwork across functions and disciplines. Scientific discoveries must be communicated to colleagues, stakeholders, policymakers, producers, and the public. Consequently, *the ability to build productive professional relationships should be viewed not simply as a secondary "soft skill," but as an important component of scientific and professional competence.*

There is also an important developmental dimension to these relationships. The needs of a beginning graduate student differ from those of an advanced doctoral candidate, postdoctoral researcher, new industry scientist, faculty member, or experienced

professional. As careers evolve, individuals must continually reassess how they communicate, collaborate, seek mentorship, provide leadership, and respond to changing expectations.

This suggests a broader principle for professional development: relationships must evolve as careers evolve.

The goal is not simply to maintain harmonious relationships, nor is it to avoid disagreement. Productive professional relationships should create conditions in which people can communicate candidly, challenge ideas respectfully, fulfill their responsibilities, resolve differences constructively, and contribute toward shared objectives.

For emerging agricultural scientists, developing these competencies early can provide benefits well beyond graduate school. The adviser–student relationship may eventually become a relationship between professional colleagues. Today's laboratory colleague may become tomorrow's collaborator. A supervisor may later become a reference, mentor, or professional connection. How individuals communicate, respond to feedback, honor commitments, and work with others, therefore, contributes to professional reputations that can extend across institutions and throughout careers.

Initiatives such as the WNASD webinar provide an important complement to formal scientific education by creating opportunities to discuss these dimensions of professional development openly. Preparing the next generation of agricultural scientists requires more than developing excellent researchers. It also requires developing professionals who can communicate effectively, navigate differences, build trust, collaborate across disciplines and cultures, and adapt successfully as their careers evolve.

In science, relationships may not appear in an experimental protocol or statistical model, but they often influence whether ideas become collaborations, whether collaborations become discoveries, and whether discoveries ultimately create impact.

Acknowledgements

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